

FIG. 1A

FIG. 1B

FIG. 1C

Baits	Prey	Reporter	Reporter Output		Logical Relationship				
			<table><tr><td>X-Gal Glu</td><td>X-Gal Gal</td></tr><tr><td>URA- Glu</td><td>URA- Gal</td></tr></table>	X-Gal Glu	X-Gal Gal	URA- Glu	URA- Gal		
X-Gal Glu	X-Gal Gal								
URA- Glu	URA- Gal								
LexA-hSos1	B42-Ras	LexOp-LacZ			And				
	B42								
TetR-c-Raf1	B42-Ras	TetOp-URA3							
	B42								
LexA-Max	B42-c-Raf1	LexOp-LacZ			Ls1				
	B42-Mxi1								
TetR-RosV12	B42-c-Raf1	TetOp-URA3			Ls2				
	B42Mxi1								
LexA-RosV12	B42-c-Raf1	LexOp-LacZ			Ls1				
	B42-Cdc25								
TetR-RasA15	B42-c-Raf1	TetOp-URA3			Ls2				
	B42-Cdc25								

FIG. 2

TOP SECRET 5025260



Cell	LacZ Output	$\beta$ -Galactosidase Activity
1		$22.6 \pm 3.3$
2		$7.4 \pm 1.0$

FIG. 3A

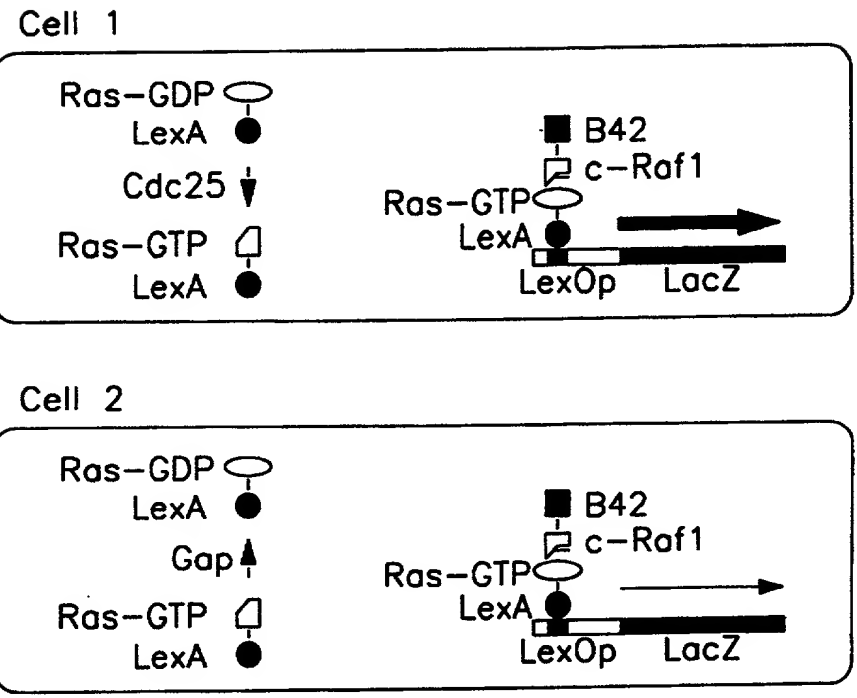


FIG. 3B

Input Values		LacZ Output
1(B42-c-Raf1)	0(GAP)	0
1(B42-c-Raf1)	1(Cdc25)	1

FIG. 3C

# Logical Not

$\alpha$  factor = 0  
 TGF- $\beta$  = 1  
 Input  $\alpha$ -factor, output TGF- $\beta$   
 Input TGF- $\beta$ , output  $\alpha$  factor

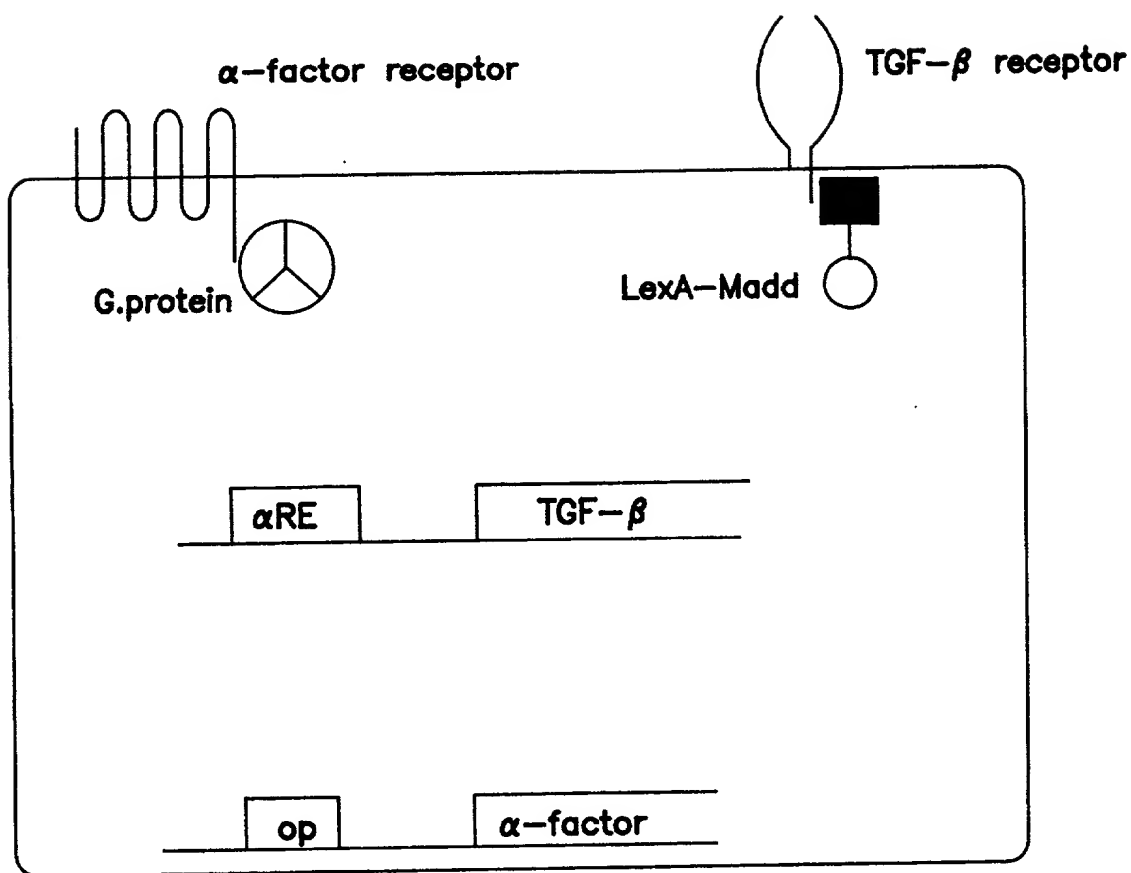


FIG. 4

Four input output channels (variety of possible logical operations)			
	Inputs	Receptors	
	$\alpha$ factor	$\alpha$ factor R	
	TGF- $\beta$	TGF- $\beta$ R	
	Delta	Notch	
	Bradykinin	Bradykinin R	

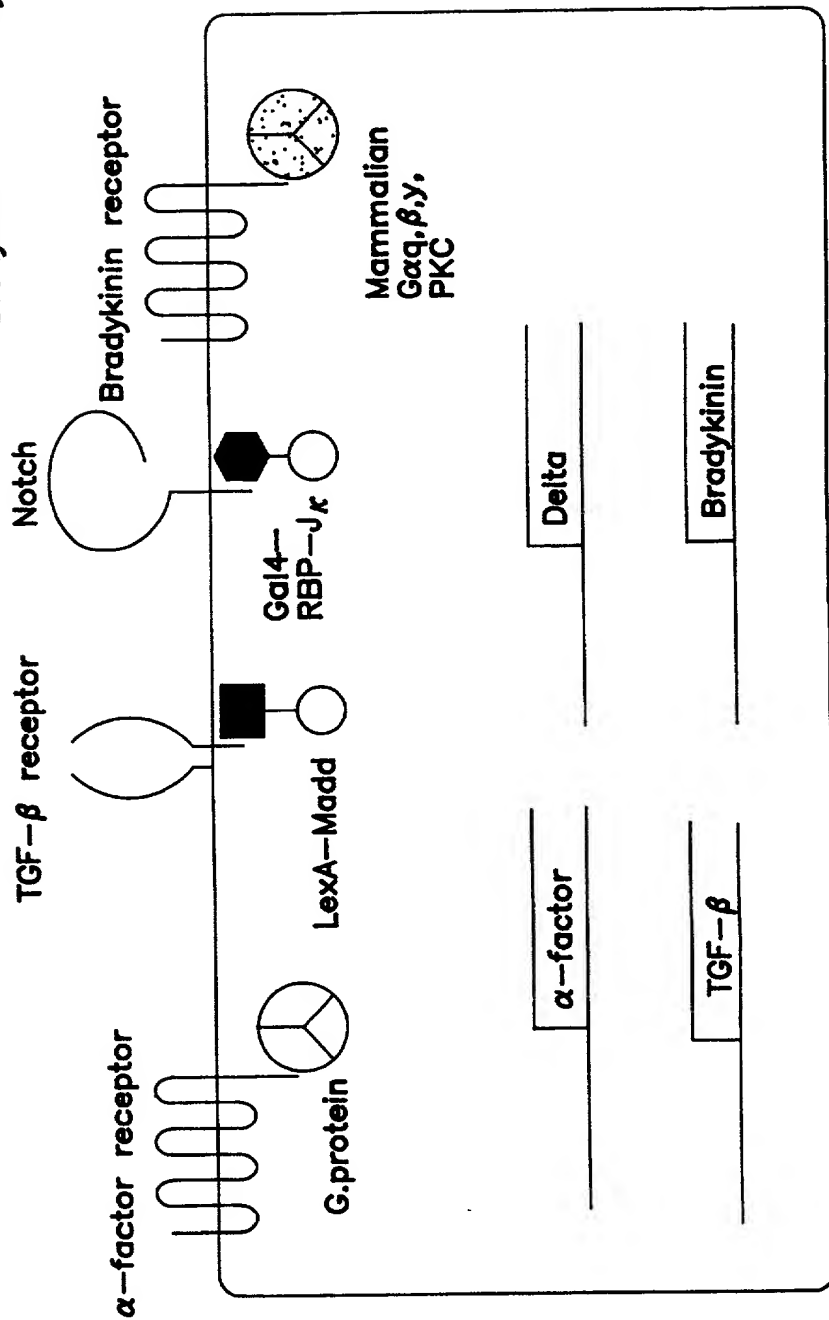


FIG. 5

# Fluorescence resonance energy transfer "transistor"

No green light input  
HIV protease linker intact  
Blue light input  
Green light output

Green light input  
Linker cleaved  
Blue light input  
No green fluorescence

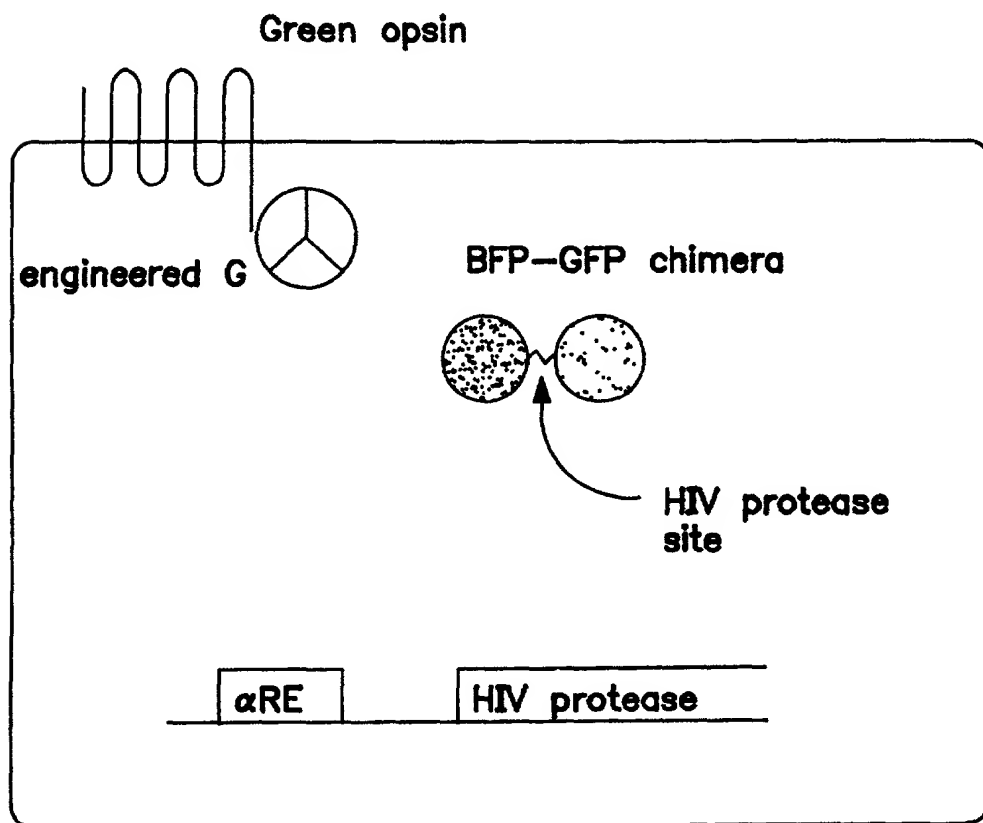


FIG. 6